

VII-23 Sulphur Refining (by outside
sources)
1953-54 -5-5-

OCTOBER 12th 1956
YERRINGTON HOTEL

MR. A. E. MILLER, GEN. MGR.,
ANACONDA COMPANY,
WEED HEIGHTS, NEVADA

AGB - GWS
MR. A - WBS
just reading
you might
be interested?

Sulphur Refining
Chemical Sources

DEAR SIR,

I HOPE YOU WILL PARDON MY PRESUMPTION IN MAKING THE FOLLOWING SUGGESTION REGARDING YOUR SULFUR OPERATIONS BETWEEN YOUR PIT AT THE LEVENTHAN SULFUR MINES, AND YOUR ACID PLANT AT WEED HEIGHTS. THIS OUT-LINE MAY HAVE MERIT, ESPECIALLY AS THE SULFUR CONTENT AT THE PIT DROPS TO LOWER CONTENT, AS MOST DEPOSITS DO GO DOWN, AND WHEN TRANSPORTATION COSTS IN RELATION TO "S" GO UP.

SOME YEARS AGO THIS WRITER WORKED ON A POTENTIAL RECOVERY OF SULFUR AT CLEAR LAKE, CALIFORNIA. THRU THE ABLE ASSISTANCE OF C. E. CURTIS, WHO LIVES AT HIGHLAND AVE., LOS GATOS, CAL., AND WHO IS AN EXPERIENCED CHEMICAL ENGINEER, WE WORKED OUT A NEW AND UNIQUE METHOD OF RECOVERING PURE SULFUR AT THE MINE, AND AT AN ESTIMATED COST OF UNDER \$3.00 PER TON.

THE ORE WAS PULVERIZED TO AROUND $\frac{1}{4}$ "-, DROPPED INTO A KETZLE WHICH WAS CLOSED AFTER BEING CHARGED, THEN HOT DIESEL OIL WAS INJECTED, AFTER A VERY LOW PRESSURE HAD BEEN PULLED. THE HOT OIL SATURATED THE SULFUR-SILICIOUS ORE AND ABSORBED ALL OF THE SULFUR CONTENT, THEN THIS OIL WAS PULLED BY A PUMP AND RUN THRU A REFRIGERATOR ON A FAST FREEZE — THE SULFUR CRYSTALLIZED AND SEPARATED AT ONCE, LEAVING THE OIL SULFUR-FREE. THIS SULFUR WAS CAUGHT ON A SCREEN, STEAM CLEANED, AND WAS THEN A MARKETABLE NEEDLE CRYSTAL READY FOR USE, OR FOR FLOWER PROCESS.

THIS SYSTEM IS SIMPLE, GIVES A VERY HIGH RECOVERY ON THE "S", AND THE OIL IS USED OVER AND OVER WITH SMALL LOSS. THE SYSTEM IS SET UP AT THE SULFUR MINE PIT, SO ALL WASTE TAILINGS ARE DISPOSED OF AT THE PIT, WHICH ELIMINATES TRANSPORTATION OF NON-SULFUR ADULTERANTS.

I BELIEVE A PILOT PLANT COULD BE ECONOMICALLY SET UP UNDER MR. CURTIS'S DESIGN AND SUPERVISION AT WEED, SO A REAL TEST COULD BE MADE PRIOR TO CONSIDERATION OF A LARGER PLANT AT THE SULFUR MINE. MR. CURTIS IS A REMARKABLE PERSON WHO HAS A MIND THAT CONCEIVES SHORT-CUT ECONOMICAL CHEMICAL PROCESSING. HE IS WELL WORTH YOUR INTEREST.

MY INTEREST WAS AROUSED WHEN I PASSED YOUR SULFUR ORE TRANSPORTS HAULING LOW GRADE SULFUR ORE AROUND 60 MILES FROM YOUR MINE TO WEED HEIGHTS — IT WOULD CERTAINLY CUT COSTS IF PURE SULFUR COULD BE HAULED INSTEAD OF 15% ORE. MR. CURTIS HAD A BACKGROUND IN DE-SULFURING OIL — THEN SUBSEQUENTLY IN ADDING SULFUR TO HIGH-SPEED CUTTING MACHINE OILS, SO THAT HE IS VERY CONVERSANT WITH THE BASIC PRINCIPLES OF THIS METHOD ABOVE OUTLINED.

I HAVE BEEN IN MINING WORK FOR 30 YEARS² AND NATURALLY HAVE ACCUMULATED A LOT OF RESEARCH INFORMATION. I CAME TO YERINGTON TO TRY TO FIND EMPLOYMENT WITH YOUR COMPANY AND WAS KEENLY DISSAPPOINTED WHEN YOUR PERSONAL DEPT ADVISED ME YOU WERE NOT HIRING ANYONE AT THIS TIME. MY LAST JOB WAS Supt. of THE STANDARD COPPER CORP'S EXPLORATIONS AT JACOB'S PEAK, EUREKA COUNTY, WHERE I WORKED IN JULY AND AUGUST AND WAS PAID OFF WITH "N.S.F." CHECKS, SO I REALLY NEED WORK. IF YOU KNOW OF ANY POSSIBILITIES IN THIS LINE I WOULD APPRECIATE YOUR INTEREST.

I WOULD SUGGEST THAT IF THE SULFUR PROCESS OUTLINED HAS INTEREST THAT YOU CONTACT MR. CURTIS - HE IS A CONSULTANT CHEMICAL ENGINEER

VERY TRULY YOURS

John M. Tyler

Room 25
YERINGTON HOTEL

BY THE WAY, IF YOU PUT SOME OF YOUR LOW GRADE SULFUR ORE, $\frac{1}{4}$ " MINUS, IN A PRESSURE COOKER - COVER WITH DIESEL OIL, HEAT AND HOLD ON FLAME FOR A FEW MINUTES - THEN POUR OFF HOT OIL ^{INTO A PAN} AND PUT INTO A DEEP FREEZE YOU WILL PROBABLY GET SULFUR CRYSTALS IN A FEW MINUTES AFTER FREEZING.

October 5th, 1954

Mr. Jack B. Davis
President
Smidas Company, Inc.
Woolworth Building - 49th Floor
New York 7, New York

Dear Mr. Davis:

I have before me your letter of September 30th, 1954 regarding the possible extraction of sulfur from ores of volcanic origin.

Your description of your process is most interesting and no doubt would have its definite application in some of the existing properties of low sulphur content.

Insofar as we are concerned at Weed Heights, we would not be interested in this process due to the fact that we have already made the necessary capital investment and have expended considerable monies in order to be able to treat the low grade sulphur ore in our FluoSolids process.

Your estimated production costs seem certainly within reason and if they might be achieved or lowered a little they might even compare with our present costs. On the other hand, as explained above, we have already made the capital outlay and would not care to consider anything definite for this property.

As per your request I would be very glad to discuss this with you some time when I may be at our New York Office and with that in mind, Mr. John Norton, of our office in New York, could advise you or your associate whenever I might be in New York. This discussion would only be of a general nature, as there would be no hope of installing your plant at our present operation.

Very truly yours,

Original Signed by
A. E. Millar

AEM:m

bc: CEW

SMIDAS COMPANY, INC.

FOREIGN TRADE AND INDUSTRIAL DEVELOPMENT

WOOLWORTH BUILDING - 49TH FLOOR

NEW YORK 7, N. Y., U. S. A.



✓
TELEPHONE
WORTH 4-2792-3-4

September 30, 1954.

Sulphur

Mr. A. E. Millar, General Manager,
Yerington Mine,
Anaconda Copper Mining Co.,
P.O. Box 1,000,
Weed Heights, Nevada.

In re: Solvent Extraction of Sulfur from
ores of volcanic and/or geyser origin.

Dear Sir,-

In line with a conversation which my associate, L. B. Tucker, had with Mr. John Norton recently, I am pleased to place before you as briefly as possible particulars regarding the new Solvent Extraction Process which Smidas Co. Inc., has developed.

It utilizes commercially proven equipment adapted from other industries, and has Pilot Plant demonstrated on eight to ten surface sulfur ores the efficacy of the process, regardless of percentage of sulfur content, and regardless of the composition of the residue ore, sufficient to assure the following advantages:

1. Installation costs of one-third to one-fourth that of the Frasch process, which costs approximately \$10,000 per ton day of sulfur produced, and is only applicable to dome origin sulfur;
2. Recovery of 98% to 99% of all of the free sulfur contained in the surface sulfur ore regardless of composition;
3. Recovered sulfur having a purity of 99.8% to 99.94%, in contrast to Frasch process sulfur of 99.5%; furthermore, the Smidas process guarantees that sulfur produced by it will be free from impurities such as arsenic, selenium, tellurium, etc.;
4. Have developed a process enabling the production of fine powdered, refined sulfur without the necessity of either grinding or sublimation;
5. Can assure a cost of processing, including ore grinding (to 10 mesh) and solvent extraction, of from \$4.50 per ton on 75% sulfur content ore to not exceeding \$10 per ton on 25% ore, which is fully competitive with that of Frasch production costs;
6. Utilization of such equipment as to guarantee the recovery of 99% to 99½% of the solvent for continued reuse, thereby assuring both low cost efficiency and safety of the solvent extraction operation.

Another very important development, as we see it, as part of our process is the possibility of beneficiating low sulfur content ores into much higher sulfur contents before solvent extraction. While as yet we can not guarantee this, preliminary runs have shown that a 20/30% sulfur content ore from a certain Wyoming deposit has been successfully concentrated to 65/75% sulfur content, and our equipment manufacturers are quite confident that this can be accomplished very economically on a commercial basis.

If such proves to be the case, would there not be the possibility of a considerable saving to your Company in connection with your Yerington operation, and perhaps elsewhere?

Needless to say, I shall look forward with pleasure to an opportunity to discuss these matters with you and/or your New York associates at a mutually convenient time.

Sincerely yours,

Jack B. Davis
President
SMIDAS CO. INC.

Copy to Mr. John Norton.

*some time in NY will discuss
we have our plant
cost of \$10.00 per pound*

JAMES B. CHRISTIE
ROBERT L. PARKER
C. RUSSELL HALE
RICHARD B. HOEGH

CHRISTIE, PARKER & HALE
LAWYERS
595 EAST COLORADO STREET
PASADENA 1, CALIFORNIA

RYAN 1-6149
SYCAMORE 2-8833
SYCAMORE 5-3248

August 19, 1954

Handwritten signature
See. Sargent

Mr. A. E. Millar
General Manager
Yerington Mines
Anaconda Copper Mining Company
Weed Heights
Yerington, Nevada

Dear Mr. Millar:

At Mr. Laist's suggestion I telephoned you today and discovered that you were away for a considerable period. Accordingly I talked to Mr. Burch, Superintendent of Mines of your organization and he suggested that I write to you outlining my conversation with him. This I am glad to do.

I have known Mr. Laist for many years, grew up in the Anaconda organization and worked for it in Chile for some years before taking up the law. I represent Pacific Foundry Company, Ltd., of San Francisco, which owns rights to a sulphur vaporization process that is being exploited by The Ralph M. Parsons Company of Los Angeles. Some time ago it was thought that the low grade material at Leviathan might afford a source of sulphur for application of the process, but at that time I talked with Mr. Dick Newlin and he said that the amount of such low grade material was not well enough known to warrant further discussion. Last week in conversations with Mr. Laist he told me that you were now screening out a one-quarter inch mesh product running in the neighborhood of 20% sulphur and that this material would be available. He suggested that I call you for details. In your absence I talked to Mr. Burch and it developed that the fines, although they run 17% or 18% sulphur do not amount to much by way of tonnage. Mr. Burch was of the opinion that there would be less than 100 tons a day of such material. This is probably not enough to justify a commercial operation, even without taking into account the weather conditions of Leviathan, the lack of power and the shortage of water there. So the prospect does not look attractive.

I want to take this occasion to extend my thanks to Mr. Burch for his frank discussion of the matter.

Yours very truly,

Handwritten signature of James B. Christie

James B. Christie

JBC/lt

August 19, 1954

MEMORANDUM FOR THE FILES

RE: Jim Christie, Counsel for Pacific Foundry Co. Los Angeles
who is working with the Ralph M. Parsons Co. Los Angeles

Mr. Christie called this morning to inquire about the availability of sulphur fines at Leviathan to use in a process controlled by his principals. I told Mr. Christie that in my opinion there would be less than 100 tons of fines discarded daily at Leviathan and the grade would be less than 20%. He said he thought this ~~AMOUNT~~ of material would not be large enough to warrant an installation at Leviathan to extract sulphur.

I explicitly told Mr. Christie that I was unable to estimate the tonnage of fines to be discarded at Leviathan and was merely giving him an opinion that the quantity would not exceed 100 tons per day for the life of the ore body.

HRB:ec

HRB

ANACONDA COPPER MINING COMPANY

25 Broadway

New York 4. N.Y.

OFFICE OF VICE PRESIDENT
IN CHARGE OF MINING OPERATIONS

January 6, 1954

W. H. H. H.

Leviathan Refinery

Mr. M. L. Bramson
1441 Montgomery Street, Apt. 3
San Francisco, California

Dear Mr. Bramson:

Your letter of December 30th on the subject of a suggested sulphur refinery at the Leviathan Mine, has been received and the proposals contained therein have been given our careful consideration.

First of all, I wish to comment on the statement made in your letter of December 19th to Mr. Millar, that it is your understanding that our Company would view with favor a proposal for the erection at the Leviathan Mine of a sulphur refinery. If this has been your impression of the degree of interest expressed thus far in your proposal by our Company I wish to correct it. We have stated that we would be interested in discussing and studying your proposal at the proper time, but have taken no position whatsoever that we look upon it with favor, or disfavor.

Next, I wish to correct another impression which may be erroneous on your part. You propose, if an agreement can be reached with our Company, that you and your associates would design and construct the refinery at your own expense and, based upon purchasing ore from us averaging 28% S or better at a cost not to exceed \$4.50 per ton, you would be able to deliver to our plant at Yerington molten brimstone in tank trucks at \$36.60 per short ton at the rate of 150 short tons per day. You then state that according to your understanding this price is well below the cost of Gulf sulphur delivered at Yerington. Aside from the technical problems involved which make it appear doubtful to us that you can quote any such price and still leave a profit to yourselves, I wish to point out that you would have to compete, not with the cost of Gulf sulphur, but with our own cost of producing equivalent sulphur (in the form of SO_2 gas ready to enter the Acid Plant less cost of burning) with the mining, transportation and conversion installations which we have already set up and started to operate. Our figures show that, after we get our installations running properly at capacity, we may expect to make an operating cost, expressed in terms of equivalent sulphur,

Mr. M. L. Bramson
San Francisco, Calif.

January 6, 1954

sufficiently lower than the cost of Gulf sulphur delivered at Yerington so that the difference in cost will return our entire investment in the mining property and mine and conversion installations, plus interest, over the period of operations.

At this time we can only reaffirm the position we have previously expressed both to Mr. George and yourself: namely, that while we would be interested in discussing your proposal at the proper time, that time will not be for some months yet, or possibly toward the end of the coming summer. By that time we estimate that we shall have our installations functioning properly and at capacity, so that we shall know exactly what costs we can make. Against these costs, derived from actual operations, we then could make an accurate comparison of the costs, and the advantages or disadvantages, involved in your proposal.

You may expect, then, that we shall get in touch with you again in possibly six to eight months' time. Meanwhile, I appreciate the interest you have shown in presenting your proposal to us, and reciprocate your expression of seasonal greetings.

Very truly yours,


R. S. Newlin

RSN:A

cc: Mr. A. E. Millar ✓

From

M. L. BRAMSON

Garfield 1-4588

December 30th 1953

1441 Montgomery Street - Apt. 3
Telegraph Hill, San Francisco
California

Mr. Richard S. Newlin,
Vice President,
Anaconda Copper Mining Company,
25 Broadway,
New York City.

agb - [unclear]
Fate - sulphur supply.

Dear Mr. Newlin,

Suggested Sulphur Refinery
at the Leviathan Mine

I refer to my recent telephone conversation with you, to my subsequent visit to Yerington and the Leviathan mine on 11th December, to my letter dated 19th December addressed to Mr. Albert E. Millar, the General Manager at Yerington (copy of which I believe you have received but I attach another for your convenience) and to Mr. Millar's letter to me dated December 22nd. I also had a telephone conversation with Mr. Millar on 28th December in the course of which he suggested that in view of the additional information now available I should now put the subject matter in writing to you, which is the purpose of this letter.

We have now received the preliminary estimate of capital and operating costs which indicates that, provided we can buy from you, at the Liviathan mine, ore (crushed to 5" minus) averaging 28% S or better at cost, but not exceeding \$4.50 per ton we should, subject to the confirmatory complete engineering study, be able to deliver to you at Yerington molten brimstone in tank trucks at \$36.60 per short ton at the rate of 150 short tons per day. (This price is, I understand, well below the cost of Gulf^x delivered Yerington). This would be subject to a 10 year contract for sale to us of 600 tons of ore per day and purchase from us of 150 tons of sulphur per day.

If this proposal is of interest to you I suggest that details of an agreement should be worked out as soon as possible; thereafter test runs on the Leviathan ore and a complete engineering study would be undertaken at Mr. Edward H. Heller's expense.

If the result of this study were satisfactory, the agreement would be executed and a contract for the construction of the refinery at the Leviathan mine would then be placed with the Ralph M. Parsons Company by my principal, or a corporate nominee.

In considering this project may I suggest that you give due weight to the following advantages, some of which are difficult to assess accurately in terms of dollar saving per ton of sulphuric acid:

x Sulphur

From

M. L. BRAMSON

Garfield 1-4588

1111 Montgomery Street - Apt. 3

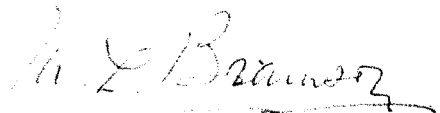
Telegraph Hill, San Francisco

California

- a) All troubles now experienced due to fine dust choking up the catalyst, causing back pressure on blowers, reduced flow and prolonged stoppages, would be avoided.
- b) The operating cost and maintenance cost of the crushing, Fluo-Sol, dust separation and scrubbing equipment would be eliminated since this substantial section of the plant would be by-passed.
- c) The control and operation of the sulphuric acid contact plant would be simplified since the feed would be brimstone. Furthermore, no equipment or operating costs would be required to break up and melt the brimstone as it would be delivered molten from tank trucks into your storage tanks.
- d) The capital cost of by-passing the redundant equipment and arranging for the burning of brimstone would be negligible whereas a substantial recovery of capital expense could be obtained, if desired, by sale of that equipment.

I now hold myself at your disposal to discuss this project further at any time or place to suit your convenience and in the meantime remain, with compliments of the season,

Yours very truly,



M. L. Bramson

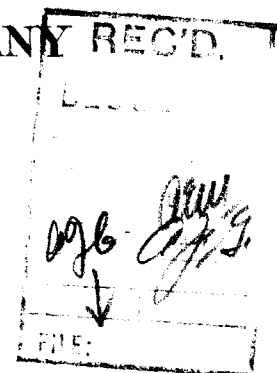
ANACONDA COPPER MINING COMPANY REC'D.

25 Broadway

New York 4, N. Y.

OFFICE OF THE VICE PRESIDENT
OPERATIONS

December 29, 1953



Mr. A. E. Millar, General Manager
Yerington Mine
Anaconda Copper Mining Company
P. O. Box 1000
Weed Heights, Nevada

Dear Bert:

This will acknowledge receipt of your letter of December 22nd with attachments, all having reference to the recent visit of Mr. M. L. Bramson and to Mr. G. N. George's proposal regarding the possibility of extracting 99.5% sulphur from the Leviathan ore.

When Mr. Bramson suggests that he can produce sulphur from a refinery to be constructed by his group at Leviathan at a price which would be competitive with the price of Gulf sulphur delivered at Yerington, he misses the point entirely. His sulphur would not have to compete with the cost of Gulf sulphur, but would have to be equal to or better than the equivalent cost of sulphur which you are able to make with the present facilities. We estimate that, after you get the Fluo-Solids and Acid Plants functioning properly, and after the crushing and screening facilities have been installed at Leviathan, your cost per dry ton of sulphur ore at an assumed grade of 28%S after screening will be as follows:

Stripping	\$3.00 per dry ton ore
Mining, including discard	1.00
Trucking	3.10
Total delivered Yerington	\$7.10
Crushing, burning, etc.	2.35
Total	<u>\$9.45</u>

On the basis of the above cost per ton of sulphur ore of 28% grade, the equivalent cost of sulphur in the gas, as introduced into the Acid Plant, would be about \$34.00 per short ton, assuming a recovery of approximately 99% of the sulphur in the ore. With this cost for sulphur, three tons of 100% sulphuric acid per ton of sulphur and \$1.65 per ton acid for conversion, your cost of 100% acid becomes \$13.00 per ton. It is this cost with which Mr. Bramson would have to compete.

Mr. A. E. Millar

- 2 -

December 29, 1953

Stating this comparison another way, if the cost of burning is assumed at \$1.00 per ton of sulphur, the cost of equivalent sulphur before burning becomes \$33.00 per short ton. Our latest figures indicate that Texas sulphur delivered at Yerington would cost about \$41.00 per short ton. The difference between these figures, or \$8.00 per ton, is about sufficient to return our capital investment in the Leviathan Mine and the Fluo-Solids Plant, including interest, over the ten-year period of the Leaching Plant operation. Since these investments have already been made, the justification for them must be that we can make acid enough cheaper from Leviathan sulphur ore compared with Texas sulphur so as to pay for the investment out of the difference in operating cost.

If Mr. Bramson or Mr. George approach you further regarding their proposal, the answer is still that we are not yet ready to discuss the matter and will not be until we have had a sufficient period of operation of the acid-manufacturing facilities to find out just what can be done with them in the matter of costs. This will probably not be until next summer, or after mining has been resumed at Leviathan.

Very truly yours,


C. E. Weed

CEW:B

cc: Mr. F. Laist

December 22, 1953

Sulphur ore

Mr. C. E. Weed, Vice-President
Anaconda Copper Mining Company
Room 1726, 25 Broadway
New York 4, New York

Dear Clyde:

You no doubt have noted in my weekly report the references which I have made to a Mr. M. L. Bramson's visit regarding the possibility of extracting 99.5% sulphur from the Leviathan ore. I covered this matter in my weekly report of December 12th.

This Gentleman still is very interested and called me on the telephone the other day and I asked him to place his story in writing. The attached letter from him dated December 19th, covers further details and confirms our discussions. In answering his letter I have clarified the latter part of the second to last paragraph of page one, which is not quite clear, and I am attaching hereto a copy of my reply to Mr. Bramson.

I realize that if something of interest to the Company might be developed that this matter should be discussed in New York before any final phase of an agreement might be entered. You will note that he brings this out at the top of page two, where he states that he would be willing to go to New York and go into a complete discussion. If such might develop I know that you would wish to sit in on such a discussion and would also have Dick and Mr. Laist present. If you might still consider it advisable I could make a short trip to New York at that time.

I am passing this entire matter on to you and no doubt you will turn the correspondence over to Dick and Mr. Laist for their perusal.

Kindest regards.

Very truly yours,

AEM:djw
2 encls.

December 22, 1953

Mr. M. L. Branson
1441 Montgomery St., Apt. 3
Telegraph Hill
San Francisco, California

Dear Mr. Branson:

Your letter of December 19th has been received in which you discuss the possibility of extracting 99% sulphur from our ore at the Leviathan Mine.

I have read your letter and your suggestions are perfectly in order with one exception. The second to last paragraph on page one, the latter part, reads, "and b) the price of the brimstone at Yerington, after crediting the Anaconda Company with the ore at cost, would be competitive with the price of Gulf sulphur delivered Yerington". The word "after" might be misleading and I believe that this word should be "before". Another point in this same sentence would be that, rather than would be competitive with the price of Gulf sulphur delivered in Yerington, in order to be attractive to our Company, would have to be less than the price of Gulf sulphur delivered in Yerington. In other words we have already made a certain capital investment and we know that we can use our present installation and make sulphuric acid for a certain price. We naturally realize that in order to operate certain units of our installation we are faced with certain labor costs and repair and maintenance costs. If these same costs might be eliminated that would naturally be applied as a factor against any small additional capital expenditure which might have to be made in order to use 99.5% sulphur, so that it might be said that the actual cost of operating this so called additional equipment at present would not be a factor when making a comparison between your cost of sulphur laid down at our property as compared to the actual price of Gulf sulphur delivered here. In other words, as I tried to bring out in our conversation, I believe that your entire point should be a cost less than the price of Gulf sulphur.

We will be very glad to hear from you further and as I have already told you, and as you bring out in your letter, if your study should indicate something worthwhile economically it would be advisable that this whole matter be discussed in New York.

Mr. M. L. Branson

"2"

December 22, 1953

I am pleased to note that the other points in your letter are in accordance with our telephone discussions, that our Company would not be interested in any financial outlay for the project which you have in mind but that such expenditures would be entirely for your principal's account.

Kindest regards.

Very truly yours,

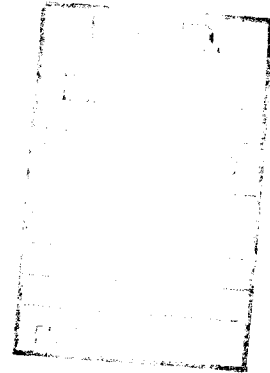
AEM:djw

From

M. L. BRAMSON
GARfield 1-4588

December 19th 1953

1441 Montgomery Street - Apt. 3
Telegraph Hill, San Francisco
California



Mr. Albert E. Millar,
General Manager,
Anaconda Copper Mining Company,
Yerington Mines,
Weed Heights, Nevada.

Dear Mr. Millar,

Before tackling my subject matter allow me to thank you for the courtesy and open-mindedness shown by yourself and your colleagues in the course of our discussions at Yerington last Friday, December 11th.

As you will recall, my visit originated from a call made the previous week by Mr. G. N. George upon your vice President, Mr. Richard S. Newlin, in New York and my subsequent telephone conversation with him, the object being to enquire, in a preliminary way, into the feasibility of extracting 99% sulphur from your ore at the Leviathan mine thereby eliminating most of the troubles and some of the operating costs at Yerington, while involving only negligible capital cost in switching from ore to brimstone as raw material.

At this point I should perhaps confirm for the record that I represent Mr. Edward R. Heller of 600 Market Street, San Francisco. For some time I have been searching on Mr. Heller's behalf for opportunities for producing brimstone from medium and low grade sulphur ore and Mr. George had suggested to me, in the light of his previous discussions with your company, that such an opportunity might exist in connection with the Yerington and Leviathan operations.

Following my conversations with yourself, Mr. Gould and Mr. Burch, it is my understanding that your company would view with favour a proposal for the erection at the Leviathan mine of a sulphur refinery to which you would deliver ore at the appropriate rate and which in turn would deliver brimstone to you at Yerington at the rate of 150 short tons per day; provided that a) none of the capital cost of such refinery would be borne by the Anaconda Copper Mining Company and b) the price of the brimstone at Yerington, ^{after} crediting the Anaconda Company with the ore at cost, ^{less} would be competitive with the price of Gulf sulphur delivered Yerington. ^{less}

In the light of the above I have made arrangements with the Ralph S. Parsons Company of Los Angeles, the manufacturers and sole licencees of the refining equipment for the Fan Pacific process (the refining process developed by Mr. George) to make a quick preliminary study and estimate of capital and operating costs, based on the data which you were good enough to give me. If this study should indicate a probability that such a

From

M. L. BRAMSON
GARfield 1-4588

1441 Montgomery Street - Apt. 3
Telegraph Hill, San Francisco
California

project would make economic sense, it would be my thought to go to New York to discuss in some detail, and define, what your company and my principal would be willing to do in the event that a full detailed engineering study were to disclose no serious defect in the scheme. Should that discussion lead to mutual agreement (subject to the result of the final complete engineering study) such a study would then be undertaken at Mr. Heller's expense so that, if satisfactory, the scheme could proceed.

Please let me know whether the above procedural suggestions meet with your approval. In the meantime I propose to contact you by telephone as soon as the preliminary study by the Ralph M. Parsons company is to hand; it is promised by Wednesday next, December 23rd.

With best wishes for Christmas and the New Year I remain,

Yours very truly,

A handwritten signature in dark ink, appearing to read "M. L. Bramson", with a long horizontal flourish extending to the right.

M. L. Bramson